Optical setup to clarify the polarization states of the input and outcoupled light is shown in Fig. S1. The polarization state of the outcoupled beam was measured by rotating the polarizer before the detector. It was observed that the left-handed circularly polarized light was outcoupled when the TE polarized beam was incident to the film. The detailed mechanism is under investigation, and the detailed results and theoretical calculations will be reported in the near future. Optical switching behavior of the grating waveguide coupler is related to trans-cis photoisomerization of the azobenzene moiety in the polymer film (PM6AB2) by irradiation with UV and visible light. UV-vis absorption spectra of the PM6AB2 film before and after photoirradiation are shown in Fig. S2. Upon irradiation with UV light at 366 nm, trans-cis photoisomerization was induced, and cis-trans back-isomerization took place after exposure to

*To whom correspondence should be addressed. Fax: +81-45-924-5275; E-mail: tikeda@res.titech.ac.jp
visible light at 436 nm. However, the initial absorption did not recover because the molecular alignment became disordered after the first irradiation.

Figure Captions for Supporting Information

**Fig. S1.** Optical setup for the investigation of the polarization state of the outcoupled beam from the grating waveguide coupler at the TE polarization of the incident beam. P, polarizer; QWP, quarter-wave plate; D, detector; I, output beam.

**Fig. S2.** UV-vis absorption spectra of the PM6AB2 film before and after photoirradiation at room temperature. (1) Before irradiation; (2) after irradiation with UV light at 366 nm (11 mW/cm²) for 60 s; (3) after exposure to visible light at 436 nm (41 mW/cm²) for 20 s.
\[
\text{He-Ne Laser} \quad (\lambda = 633 \text{ nm})
\]

Bang et al., Fig. S1
Bang et al., Fig. S2